[4910-13-P]

#### DEPARTMENT OF TRANSPORTATION

**Federal Aviation Administration** 

14 CFR Part 39

[Docket No. FAA-2016-3702; Directorate Identifier 2015-NM-103-AD]

RIN 2120-AA64

**Airworthiness Directives;** The Boeing Company Airplanes

**AGENCY:** Federal Aviation Administration (FAA), DOT.

**ACTION:** Notice of proposed rulemaking (NPRM).

**SUMMARY:** We propose to supersede Airworthiness Directive (AD) 2013-24-12, which applies to all The Boeing Company Model 747-8 and 747-8F airplanes.

AD 2013-24-12 currently requires repetitive ultrasonic or dye penetrant inspections for cracking of the barrel nuts and bolts on each forward engine mount, and related investigative and corrective actions if necessary. Since we issued AD 2013-24-12, we have determined that it is necessary to mandate the installation of new barrel nuts or new inspections to adequately address the unsafe condition. This proposed AD would retain the requirements of AD 2013-24-12 and add requirements to install new barrel nuts at the forward engine mounts; or identify the part number of the barrel nuts, inspect affected barrel nuts for gaps of the strut bulkhead and forward engine mount, and do related investigative and corrective actions if necessary. This proposed AD would also remove airplanes from the applicability. We are proposing this AD to detect and correct cracked barrel nuts on a forward engine mount, which could result in reduced load capacity of the forward engine mount, separation of an engine under power from the airplane, and consequent loss of control of the airplane.

**DATES:** We must receive comments on this proposed AD by [INSERT DATE 45 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

**ADDRESSES:** You may send comments, using the procedures found in 14 CFR 11.43 and 11.45, by any of the following methods:

- Federal eRulemaking Portal: Go to http://www.regulations.gov. Follow the instructions for submitting comments.
  - Fax: 202-493-2251.
- Mail: U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE., Washington, DC 20590.
- Hand Delivery: Deliver to Mail address above between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

For service information identified in this NPRM, contact Boeing Commercial Airplanes, Attention: Data & Services Management, P. O. Box 3707, MC 2H-65, Seattle, WA 98124-2207; telephone: 206-544-5000, extension 1; fax: 206-766-5680; Internet https://www.myboeingfleet.com. You may view this referenced service information at the FAA, Transport Airplane Directorate, 1601 Lind Avenue SW., Renton, WA. For information on the availability of this material at the FAA, call 425-227-1221. It is also available on the Internet at http://www.regulations.gov by searching for and locating Docket No. FAA-2016-3702.

#### **Examining the AD Docket**

You may examine the AD docket on the Internet at http://www.regulations.gov by searching for and locating Docket No. FAA-2016-3702; or in person at the Docket Management Facility between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this proposed AD, the regulatory evaluation, any comments received, and other information. The street address for the Docket Office (phone: 800-647-5527) is in the ADDRESSES section. Comments will be available in the AD docket shortly after receipt.

**FOR FURTHER INFORMATION CONTACT:** Nathan Weigand, Aerospace Engineer, Airframe Branch, ANM-120S, FAA, Seattle Aircraft Certification Office (ACO), 1601 Lind Avenue SW., Renton, WA 98057-3356; phone: 425-917-6428; fax: 425-917-6590; email: Nathan.p.weigand@faa.gov.

## SUPPLEMENTARY INFORMATION:

#### **Comments Invited**

We invite you to send any written relevant data, views, or arguments about this proposed AD. Send your comments to an address listed under the ADDRESSES section. Include "Docket No. FAA-2016-3702; Directorate Identifier 2015-NM-103-AD" at the beginning of your comments. We specifically invite comments on the overall regulatory, economic, environmental, and energy aspects of this proposed AD. We will consider all comments received by the closing date and may amend this proposed AD because of those comments.

We will post all comments we receive, without change, to http://www.regulations.gov, including any personal information you provide. We will also post a report summarizing each substantive verbal contact we receive about this proposed AD.

#### Discussion

On November 19, 2013, we issued AD 2013-24-12, Amendment 39-17686 (78 FR 71989, December 2, 2013) ("AD 2013-24-12"), for all The Boeing Company Model 747-8 and 747-8F airplanes. AD 2013-24-12 requires repetitive ultrasonic or dye penetrant inspections for cracking of the barrel nuts and bolts, as applicable, on each forward engine mount, and related investigative and corrective actions if necessary. AD 2013-24-12 resulted from a report of cracked barrel nuts found on a forward engine mount. We issued AD 2013-24-12 to detect and correct cracked barrel nuts on a forward engine mount, which could result in reduced load capacity of the forward engine mount,

separation of an engine under power from the airplane, and consequent loss of control of the airplane.

### **Actions Since AD 2013-24-12 Was Issued**

The preamble to AD 2013-24-12 explains that we considered the requirements "interim action" and were considering further rulemaking. We now have determined that further rulemaking is indeed necessary, and this proposed AD follows from that determination.

## Related Service Information under 1 CFR part 51

We reviewed the following service information:

- Boeing Service Bulletin 747-71A2329, Revision 1, dated May 28, 2015. The service information describes procedures for inspecting for cracked bolts and barrel nuts on the forward engine mounts, replacing cracked bolts and barrel nuts, and sending the inspection results and cracked parts to Boeing.
- Boeing Special Attention Service Bulletin 747-71-2332, Revision 1, dated May 28, 2015. The service information describes procedures for installing new barrel nuts, inspecting the barrel nuts at the forward engine mount to determine the part number (P/N), inspecting for gaps of the strut bulkhead and forward engine mount, and doing applicable related investigative and corrective actions.
- 747-8/-8F Airworthiness Limitation (AWL), Document Number
   D011U721-02-01, dated September 2015, which includes a limitation for Structurally
   Significant Item (SSI) 54-50-003c, which describes procedures for structural inspections.

This service information is reasonably available because the interested parties have access to it through their normal course of business or by the means identified in the ADDRESSES section.

#### FAA's Determination

We are proposing this AD because we evaluated all the relevant information and determined the unsafe condition described previously is likely to exist or develop in other products of the same type design.

## **Proposed AD Requirements**

This proposed AD would retain all requirements of AD 2013-24-12. This proposed AD would also require accomplishing the actions specified in Boeing Special Attention Service Bulletin 747-71-2332, Revision 1, dated May 28, 2015, described previously, except as discussed under "Differences Between Proposed AD and Service Information." For information on the procedures and compliance times, see this service information at http://www.regulations.gov by searching for and locating Docket No. FAA-2016-3702.

The phrase "related investigative actions" is used in this proposed AD. "Related investigative actions" are follow-on actions that (1) are related to the primary action, and (2) further investigate the nature of any condition found. Related investigative actions in an AD could include, for example, inspections.

The phrase "corrective actions" is used in this proposed AD. "Corrective actions" are actions that correct or address any condition found. Corrective actions in an AD could include, for example, repairs.

## **Differences Between Proposed AD and Service Information**

Boeing Special Attention Service Bulletin 747-71-2332, Revision 1, dated May 28, 2015, specifies to contact the manufacturer for instructions on how to repair certain conditions, but this proposed AD would require repairing those conditions in one of the following ways:

- In accordance with a method that we approve; or
- Using data that meet the certification basis of the airplane, and that have been approved by the Boeing Commercial Airplanes Organization Designation Authorization (ODA) whom we have authorized to make those findings.

## **Costs of Compliance**

We estimate that this proposed AD affects 7 airplanes of U.S. registry.

We estimate the following costs to comply with this proposed AD:

#### **Estimated costs**

Action	Labor cost	Parts cost	Cost per product	Cost on U.S. operators
Inspections (retained actions from AD 2013-24-12)	Up to 24 work- hours X \$85 per hour = \$2,040 per inspection cycle	\$0	Up to \$2,040 per inspection cycle	Up to \$14,280 per inspection cycle
Installation (new proposed action)	17 work-hours X \$85 per hour = \$1,445	\$6,384	\$7,829	Up to \$54,803
Inspections (new proposed alternative actions)	4 work-hours X \$85 per hour = \$340	\$0	\$340	Up to \$2,380
Maintenance program revision (new proposed requirement)	1 work-hour X \$85 per hour = \$85	\$0	\$85	\$595

We have received no definitive data that would enable us to provide cost estimates for the bootstrap installation specified in this proposed AD. We estimate the following costs to do other necessary related investigative and corrective actions that would be required based on the results of the proposed inspection. We have no way of determining the number of aircraft that might need these actions:

#### **On-condition costs**

Action	Labor cost	Parts cost	Cost per product
Ultrasonic inspection	5 work-hours X \$85 per hour = \$425	\$0	\$425

According to the manufacturer, some of the costs of this proposed AD may be covered under warranty, thereby reducing the cost impact on affected individuals. We do not control warranty coverage for affected individuals. As a result, we have included all costs in our cost estimate.

### **Paperwork Reduction Act**

A federal agency may not conduct or sponsor, and a person is not required to respond to, nor shall a person be subject to penalty for failure to comply with a collection of information subject to the requirements of the Paperwork Reduction Act unless that collection of information displays a current valid Office of Management and Budget (OMB) control number. The control number for the collection of information required by this AD is 2120-0056. The paperwork cost associated with this AD has been detailed in the Costs of Compliance section of this document and includes time for reviewing instructions, as well as completing and reviewing the collection of information.

Therefore, all reporting associated with this AD is mandatory. Comments concerning the accuracy of this burden and suggestions for reducing the burden should be directed to the FAA at 800 Independence Ave., SW, Washington, DC 20591. ATTN: Information Collection Clearance Officer, AES-200.

#### **Authority for this Rulemaking**

Title 49 of the United States Code specifies the FAA's authority to issue rules on aviation safety. Subtitle I, Section 106, describes the authority of the FAA Administrator. Subtitle VII, Aviation Programs, describes in more detail the scope of the Agency's authority.

We are issuing this rulemaking under the authority described in Subtitle VII, Part A, Subpart III, Section 44701, "General requirements." Under that section, Congress charges the FAA with promoting safe flight of civil aircraft in air commerce by prescribing regulations for practices, methods, and procedures the Administrator finds necessary for safety in air commerce. This regulation is within the scope of that authority because it addresses an unsafe condition that is likely to exist or develop on products identified in this rulemaking action.

## **Regulatory Findings**

We have determined that this proposed AD would not have federalism implications under Executive Order 13132. This proposed AD would not have a substantial direct effect on the States, on the relationship between the national Government and the States, or on the distribution of power and responsibilities among the various levels of government.

For the reasons discussed above, I certify that the proposed regulation:

- (1) Is not a "significant regulatory action" under Executive Order 12866,
- (2) Is not a "significant rule" under the DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979),
  - (3) Will not affect intrastate aviation in Alaska, and
- (4) Will not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

## List of Subjects in 14 CFR Part 39

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

#### **The Proposed Amendment**

Accordingly, under the authority delegated to me by the Administrator, the FAA proposes to amend 14 CFR part 39 as follows:

#### PART 39 - AIRWORTHINESS DIRECTIVES

1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701.

#### § 39.13 [Amended]

2. The FAA amends § 39.13 by removing Airworthiness Directive (AD) 2013-24-12, Amendment 39-17686 (78 FR 71989, December 2, 2013), and adding the following new AD:

**The Boeing Company**: Docket No. FAA-2016-3702; Directorate Identifier 2015-NM-103-AD.

#### (a) Comments Due Date

The FAA must receive comments on this AD action by [INSERT DATE 45 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

## (b) Affected ADs

This AD replaces AD 2013-24-12, Amendment 39-17686 (78 FR 71989, December 2, 2013).

## (c) Applicability

This AD applies to The Boeing Company Model 747-8F and 747-8 airplanes, certificated in any category, as identified in Boeing Service Bulletin 747-71A2329, Revision 1, dated May 28, 2015.

## (d) Subject

Air Transport Association (ATA) of America Code 71, Powerplant.

# (e) Unsafe Condition

This AD was prompted by a report of cracked barrel nuts found on a forward engine mount, and by the determination that additional actions are necessary to address the unsafe condition. We are issuing this AD to detect and correct cracked barrel nuts on a forward engine mount, which could result in reduced load capacity of the forward

engine mount, separation of an engine under power from the airplane, and consequent loss of control of the airplane.

## (f) Compliance

Comply with this AD within the compliance times specified, unless already done.

# (g) Retained Repetitive Inspections and Corrective Actions, with Revised Service Information

This paragraph restates the actions required by paragraph (g) of AD 2013-24-12, Amendment 39-17686 (78 FR 71989, December 2, 2013) ("AD 2013-24-12"), with revised service information: Except as required by paragraph (h)(1) of this AD, at the time specified in paragraph 1.E., "Compliance," of Boeing Alert Service Bulletin 747-71A2329, dated September 27, 2013: Do the inspection specified in paragraph (g)(1) or (g)(2) of this AD, and do all applicable related investigative and corrective actions, in accordance with the Accomplishment Instructions of Boeing Alert Service Bulletin 747-71A2329, dated September 27, 2013; or Boeing Service Bulletin 747-71A2329, Revision 1, dated May 28, 2015. Do all applicable related investigative and corrective actions before further flight. Repeat the inspection thereafter at the times specified in paragraph 1.E., "Compliance," of Boeing Alert Service Bulletin 747-71A2329, dated September 27, 2013. As of the effective date of this AD, use only Boeing Service Bulletin 747-71A2329, Revision 1, dated May 28, 2015.

- (1) Ultrasonic inspection for cracking of the barrel nuts on each forward engine mount, except as required by paragraph (h)(2) of this AD.
- (2) Dye penetrant inspection for cracking of the bolts and barrel nuts. Whenever a dye penetrant inspection is done, all the bolts and barrel nuts on that engine mount must be removed and replaced with new or serviceable parts.

# (h) Retained Exceptions to Service Information Specifications, with Revised Service Information References

- (1) Where Boeing Alert Service Bulletin 747-71A2329, dated September 27, 2013; or Boeing Service Bulletin 747-71A2329, Revision 1, dated May 28, 2015; specify a compliance time "after the original issue date of this service bulletin," this AD requires compliance within the specified compliance time after December 17, 2013 (the effective date of AD 2013-24-12).
- (2) Where Appendix B of Boeing Alert Service Bulletin 747-71A2329, dated September 27, 2013, and Appendix B of Boeing Service Bulletin 747-71A2329, Revision 1, dated May 28, 2015, state that alternate instruments and transducers can be used, this AD requires that only equivalent instruments and transducers can be used.
- (3) Where Appendix A of Boeing Alert Service Bulletin 747-71A2329, dated September 27, 2013, and Appendix A of Boeing Service Bulletin 747-71A2329, Revision 1, dated May 28, 2015, state to record flight hours and flight cycles, record the flight hours and flight cycles on the airplane and the flight hours and flight cycles for each engine since change or removal.

#### (i) Retained Reporting and Sending Parts, with Revised Service Information

After any inspection required by paragraph (g) of this AD: Submit a report of the inspection results (both positive and negative), and return all cracked bolts and barrel nuts, at the applicable time specified in paragraph (i)(1) or (i)(2) of this AD. The report must include the information requested in Appendix A of Boeing Alert Service Bulletin 747-71A2329, dated September 27, 2013, or Appendix A of Boeing Service Bulletin 747-71A2329, Revision 1, dated May 28, 2015, except as required by paragraph (h)(3) of this AD. Both the report and all cracked bolts and barrel nuts must be sent to the address specified in Appendix A of Boeing Alert Service Bulletin 747-71A2329, dated September 27, 2013, or Appendix A of Boeing Service Bulletin 747-71A2329, Revision 1, dated May 28, 2015.

- (1) For airplanes on which an ultrasonic inspection was done and no cracking was found, do the required actions at the time specified in paragraph (i)(1)(i) or (i)(1)(ii) of this AD, as applicable.
- (i) If the inspection was done on or after December 17, 2013 (the effective date of AD 2013-24-12): Submit the report within 10 days after the inspection.
- (ii) If the inspection was done before December 17, 2013 (the effective date of AD 2013-24-12): Submit the report within 10 days after December 17, 2013 (the effective date of AD 2013-24-12).
- (2) For airplanes on which a dye penetrant inspection was done, do the required actions at the time specified in paragraph (i)(2)(i) or (i)(2)(ii) of this AD, as applicable.
- (i) If the inspection was done on or after December 17, 2013 (the effective date of AD 2013-24-12): Submit the report and return all cracked bolts and barrel nuts within 10 days after replacing the bolts and barrel nuts with new or serviceable bolts and barrel nuts in accordance with Part 2 of the Accomplishment Instructions of Boeing Alert Service Bulletin 747-71A2329, dated September 27, 2013; or Boeing Service Bulletin 747-71A2329, Revision 1, dated May 28, 2015.
- (ii) If the inspection was done before December 17, 2013 (the effective date of AD 2013-24-12): Submit the report and return all cracked bolts and barrel nuts within 10 days after December 17, 2013 (the effective date of AD 2013-24-12).

## (j) Retained Paperwork Reduction Act Burden Statement, with No Changes

A federal agency may not conduct or sponsor, and a person is not required to respond to, nor shall a person be subject to a penalty for failure to comply with a collection of information subject to the requirements of the Paperwork Reduction Act unless that collection of information displays a current valid Office of Management and Budget (OMB) Control Number. The OMB Control Number for this information collection is 2120-0056. Public reporting for this collection of information is estimated to

be approximately 5 minutes per response, including the time for reviewing instructions, completing and reviewing the collection of information. All responses to this collection of information are mandatory. Comments concerning the accuracy of this burden and suggestions for reducing the burden should be directed to the FAA at: 800 Independence Ave. SW, Washington, DC 20591, Attn: Information Collection Clearance Officer, AES-200.

#### (k) New Installation or Inspections

At the applicable time specified in paragraph 1.E., "Compliance," of Boeing Special Attention Service Bulletin 747-71-2332, Revision 1, dated May 28, 2015, except as required by paragraph (o)(1) of this AD: Do the actions specified in paragraph (k)(1) or (k)(2) of this AD, in accordance with the Accomplishment Instructions of Boeing Special Attention Service Bulletin 747-71-2332, Revision 1, dated May 28, 2015, except as required by paragraph (o)(2) of this AD.

- (1) Install new barrel nuts using the bootstrap installation method identified in Part 1 of the Accomplishment Instructions of Boeing Special Attention Service Bulletin 747-71-2332, Revision 1, dated May 28, 2015.
- (2) Do a general visual inspection to determine the part number (P/N) of the barrel nuts at the forward engine mount. If any barrel nut P/N SL4081C14SP1 is installed, before further flight, do a general visual inspection for gaps of the strut bulkhead and forward engine mount to determine if the nut-by-but method identified in Part 4 of the Accomplishment Instructions of Boeing Special Attention Service Bulletin 747-71-2332, Revision 1, dated May 28, 2015, can be used, and do all applicable related investigative and corrective actions. Do all applicable related investigative and corrective actions before further flight, including the nut-by-nut replacement identified in Part 4 of the Accomplishment Instructions of Boeing Special Attention Service Bulletin 747-71-2332, Revision 1, dated May 28, 2015. If the nut-by-nut replacement identified in Part 4 of the

Accomplishment Instructions of Boeing Special Attention Service Bulletin 747-71-2332, Revision 1, dated May 28, 2015 cannot be accomplished, install new nuts, in accordance with paragraph (k)(1) of this AD.

## (I) Maintenance Program Revision

Within 30 days after accomplishment of the actions required by paragraph (k) of this AD, or within 30 days after the effective date of this AD, whichever occurs later: Revise the maintenance or inspection program, as applicable, to incorporate the 747-8/-8F Airworthiness Limitation (AWL), Document Number D011U721-02-01, Structurally Significant Item (SSI) 54-50-003c.

## (m) Terminating Action

Accomplishment of the actions required by paragraphs (k) and (l) of this AD terminate the requirements of paragraphs (g) and (i) of this AD.

#### (n) Parts Installation Prohibition

As of the effective date of this AD, no person may install or reinstall any barrel nut P/N SL4081C14SP1 at the forward engine mount assembly on any airplane, and only P/N SL4750NA may be installed.

#### (o) New Exceptions to Service Information Specifications

- (1) Where Boeing Special Attention Service Bulletin 747-71-2332, Revision 1, dated May 28, 2015, specifies a compliance time "after the original issue date of this service bulletin," this AD requires compliance within the specified compliance time after the effective date of this AD.
- (2) Where Boeing Special Attention Service Bulletin 747-71-2332, Revision 1, dated May 28, 2015, specifies to contact Boeing for appropriate action: Before further flight, repair using a method approved in accordance with the procedures specified in paragraph (r) of this AD.

## (p) No Alternative Actions or Intervals

After the maintenance or inspection program has been revised as required by paragraph (l) of this AD, no alternative actions (e.g., inspections) or intervals may be used unless the actions or intervals are approved as an alternative method of compliance (AMOC) in accordance with the procedures specified in paragraph (r) of this AD.

## (q) Credit for Previous Actions

This paragraph provides credit for the actions specified in paragraph (k) of this AD, if those actions were performed before the effective date of this AD using Boeing Special Attention Service Bulletin 747-71-2332, dated May 30, 2014, which is not incorporated by reference in this AD.

## (r) Alternative Methods of Compliance (AMOCs)

- (1) The Manager, Seattle Aircraft Certification Office (ACO), FAA, has the authority to approve AMOCs for this AD, if requested using the procedures found in 14 CFR 39.19. In accordance with 14 CFR 39.19, send your request to your principal inspector or local Flight Standards District Office, as appropriate. If sending information directly to the manager of the ACO, send it to the attention of the person identified in paragraph (s)(1) of this AD. Information may be emailed to: 9-ANM-Seattle-ACO-AMOC-Requests@faa.gov.
- (2) Before using any approved AMOC, notify your appropriate principal inspector, or lacking a principal inspector, the manager of the local flight standards district office/certificate holding district office.
- (3) An AMOC that provides an acceptable level of safety may be used for any repair, modification, or alteration required by this AD if it is approved by the Boeing Commercial Airplanes Organization Designation Authorization (ODA) that has been authorized by the Manager, Seattle ACO, to make those findings. To be approved, the repair method, modification deviation, or alteration deviation must meet the certification basis of the airplane, and the approval must specifically refer to this AD.

- (4) AMOCs approved for AD 2013-24-12 are approved as AMOCs for the corresponding provisions of this AD.
- (5) Except as required by paragraph (o)(2) of this AD: For service information that contains steps that are labeled as Required for Compliance (RC), the provisions of paragraphs (r)(5)(i) and (r)(5)(ii) of this AD apply.
- (i) The steps labeled as RC, including substeps under an RC step and any figures identified in an RC step, must be done to comply with the AD. An AMOC is required for any deviations to RC steps, including substeps and identified figures.
- (ii) Steps not labeled as RC may be deviated from using accepted methods in accordance with the operator's maintenance or inspection program without obtaining approval of an AMOC, provided the RC steps, including substeps and identified figures, can still be done as specified, and the airplane can be put back in an airworthy condition.

## (s) Related Information

(1) For more information about this AD, contact Nathan Weigand, Aerospace Engineer, Airframe Branch, ANM-120S, FAA, Seattle ACO, 1601 Lind Avenue SW., Renton, WA 98057-3356; phone: 425-917-6428; fax: 425-917-6590; email: Nathan.p.weigand@faa.gov.

(2) For service information identified in this AD, contact Boeing Commercial Airplanes, Attention: Data & Services Management, P. O. Box 3707, MC 2H-65, Seattle, WA 98124-2207; telephone: 206-544-5000, extension 1; fax: 206-766-5680; Internet https://www.myboeingfleet.com. You may view this referenced service information at the FAA, Transport Airplane Directorate, 1601 Lind Avenue SW., Renton, WA. For information on the availability of this material at the FAA, call 425-227-1221.

Issued in Renton, Washington, on February 15, 2016.

Michael Kaszycki, Acting Manager, Transport Airplane Directorate, Aircraft Certification Service.

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